Immunochemistry

an international journal of molecular immunology

QR
180
I5

Regional Editors

DAN H. CAMPBELL, Chairman
Pasadena, California

GORDON L. ADA
Canberra, Australia

ALAIN BUSSARD
Paris, France

HENRI ISLIKER
Lausanne, Switzerland

FRED KARUSH
Philadelphia, Penn.

ROALD S. NEZLIN
Moscow, U.S.S.R.

Volume 10, 1973

U. of ILL. LIBRARY
JAN 22 1974
CHICAGO CIRCLE

Pergamon Press · OXFORD · NEW YORK · BRAUNSCHWEIG

Regional Editorial Board

Prof. DAN H. CAMPBELL (Chairman), *California Institute of Technology, Department of Chemistry, Pasadena, California 91109, U.S.A.*

Prof. GORDON L. ADA, *Microbiology Department, The John Curtin School of Medical Research, P.O. Box 334, Canberra City, A.C.T. 2601, Australia.*

Prof. ALAIN BUSSARD, *Institut Pasteur, 25 rue du Docteur Roux, Paris, France.*

Prof. HENRI ISLIKER, *Université de Lausanne, Institut de Biochimie, 21 rue du Bugnon, Lausanne, Switzerland.*

Prof. FRED KARUSH, *Department of Microbiology, School of Medicine, University of Pennsylvania, Philadelphia, Pennsylvania 19104, U.S.A.*

Dr. ROALD S. NEZLIN, *Institute of Molecular Biology, Academy of Science, Vavilov str. 32, Moscow W-312, U.S.S.R.*

Editor for Book Reviews

Dr. JUSTINE S. GARVEY, *Department of Chemistry, California Institute of Technology, Pasadena, California 91109, U.S.A.*

Advisory Editors

PETER Z. ALLEN
Rochester, New York (1975)

RUTH ARNON
Rehovot, Israel (1975)

BRIGITTE A. ASKONAS
London, England (1974)

ELIEZER BENJAMINI
Davis, California (1975)

G. BORDENAVE
Paris, France (1976)

TIBOR BORSOS
Bethesda, Maryland (1974)

ANGELO CARBONARA
Torino, Italy (1973)

RENATA E. CATHOU
Boston, Massachusetts (1975)

F. CELADA
Rome, Italy (1976)

W. PAGE FAULK
Geneva, Switzerland (1975)

HUGH FUDENBERG
San Francisco, California (1976)

VICTOR GHETIE
Bucurest, Romania (1974)

THOMAS J. GILL, III
Pittsburgh, Pennsylvania (1973)

JOEL W. GOODMAN
San Francisco, California (1974)

ALLAN L. GROSSBERG
Buffalo, New York (1974)

EDGAR HABER
Boston, Massachusetts (1974)

CHRISTOPHER S. HENNEY,
Baltimore, Maryland (1973)

JOSEPH F. HEREMANS
Brussels, Belgium (1974)

ARTHUR A. HIRATA
North Chicago, Illinois (1974)

LEROY E. HOOD
Pasadena, California (1975)

TERUKO ISHIZAKA
Baltimore, Maryland (1974)

J. C. JATON
Basel, Switzerland (1975)

BRUNO JIRGENSONS
Houston, Texas (1975)

B. KICKHÖFEN
Freiburg, Germany (1973)

JOHAN KILLANDER
Vasteras, Sweden (1973)

P. G. KLEIN
Mainz, Germany (1973)

NORMAN KLINMAN
Philadelphia, Pennsylvania (1974)

RICHARD M. KRAUSE
New York, N.Y. (1976)

HENRY G. KUNKEL
New York, N.Y. (1973)

SIDNEY LESKOWITZ
Boston, Massachusetts (1975)

FRANCIS LOOR
Basel, Switzerland (1976)

ROSE G. MAGE
Bethesda, Maryland (1975)

WILLIAM J. MANDY
Austin, Texas (1975)

FRITZ MELCHERS
Basel, Switzerland (1974)

JACOB B. NATVIG
Oslo, Norway (1976)

KAORU ONOUE
Fukuoka, Japan (1976)

J. PANIJEL
Paris, France (1973)

WILLIAM E. PAUL
Bethesda, Maryland (1975)

JAQUES PILLOT
Angers, France (1973)

ELIZABETH M. PRESS
Oxford, England (1974)

FRANK W. PUTNAM
Bloomington, Indiana (1975)

RALPH A. REISFELD
La Jolla, California (1973)

MARVIN RITTENBERG
Portland, Oregon (1975)

DAVID S. ROWE
Lausanne, Switzerland (1974)

E. RUDE
Freiburg-Zahringen, Germany (1976)

GERALD SCHIFFMAN
Brooklyn, New York (1974)

MAX SCHLAMOWITZ
Houston, Texas (1973)

GREGORY W. SISKIND
New York, N.Y. (1975)

DENNIS STANWORTH
Birmingham, England (1976)

ABRAM B. STAVITSKY
Cleveland, Ohio (1975)

LISA STEINER
Cambridge, Massachusetts (1974)

GILL STREJAN
London, Ontario, Canada (1975)

WILLIAM D. TERRY
Bethesda, Maryland (1974)

CHARLES W. TODD
Duarte, California (1973)

JOSE URIEL
Villejuif, France (1976)

SAYAKA UTSUMI
Osaka, Japan (1976)

ALAN R. WILLIAMSON
London, England (1976)

LEON WOFSY
Berkeley, California (1974)

Publishing, Subscription and Advertising Offices

Pergamon Press Ltd., Headington Hill Hall, Oxford OX3 0BW, England

Pergamon Press Inc., Maxwell House, Fairview Park, Elmsford, N.Y. 10523, U.S.A.

Published monthly

Annual Subscription Rates

For libraries, research establishments and all other multiple-reader institutions: £32 ($80.00)

Private individuals, whose departmental libraries subscribe, may obtain this Journal for their personal use at a reduced price of £7 ($17.50). All subscriptions enquiries should be addressed to The Subscriptions Manager, Headington Hill Hall, Oxford OX3 0BW.

Microform Subscriptions and Back Issues

Current subscriptions on microfiche and microfilm, and back files on microfilm as well as back issues in the regular editions of all previously published volumes are available from our sole distributors, Microforms International Marketing Corporation Inc. (MicroMark) at the most convenient address:

Fairview Park, Elmsford,
New York 10523, U.S.A.

Cowper House, Olney,
Bucks, England.

Copyright © 1973, Pergamon Press Ltd.

PERGAMON PRESS

HEADINGTON HILL HALL, OXFORD OX3 0BW
MAXWELL HOUSE, FAIRVIEW PARK, ELMSFORD, N.Y. 10523

Contents of Volume 10

January

Editorial 1

T. Werblin, Y. T. Kim, C. Smith and *G. W. Siskind:* Technical problems in equilibrium dialysis 3

F. Noll, W. Heumann and *H. Bielka:* On the nature of anti-ribosome antibodies and some properties of their reaction with ribosomes 9

F. W. Chorpenning and *H. B. Stamper:* Spontaneous adsorption of teichoic acid to erythrocytes 15

R. B. Fitzgeorge and *C. J. Bradish:* Immunospecific isolation of antibodies by dissociation from virus or particulate antigen adsorbed on charcoal 21

T. L. Simon, S. D. Burrows and *J. R. Little:* Ligand binding reactions of antibodies specific for folinic acid 31

G. L. Mayers, A. L. Grossberg and *D. Pressman:* Arginine and lysine in binding sites of anti-4-azophthalate antibodies 37

L. Favre and *M. B. Vallotton:* Influence of calcium on angiotensin II–antibody reaction 43

V. K. Ghanta, N. M. Hamlin and *R. N. Hiramoto:* Use of fluorescein conjugated dextran for the detection of MOPC 104E tumor cells 51

R. D. Smyth and *P. H. Maurer:* Molecular forms of synthetic polypeptide in blood 55

Communication to the Editors

D. Blakeslee, D. F. Antczak and *D. T. Rowlands, Jr.:* Detection of antibodies specific for FTC, DNS and myoglobin by neutralization of conjugated bacteriophage T4 61

February

S. Landucci Tosi and *R. M. Tosi:* Recombinant IgG molecules in rabbits doubly heterozygous for group *a* and group *e* allotypic specificities 65

K. Kobayashi, J. P. Vaerman and *J. F. Heremans:* Studies on human secretory IgA (II). Comparative studies on a fragment of secretory component derived from secretory IgA and fragments obtained by enzymatic digestion of free secretory component 73

J. E. Gander and *J. A. Rudbach:* Immunological investigations of penicillium—II. Primary binding of glycopeptides and glycopeptide derivatives to specific antibodies 81

K. W. Knox and *A. J. Wicken:* Non-specific inhibition of the precipitin reaction between teichoic acids and antisera 93

M. Waller and *C. W. Moncure:* The association of the serum agglutinators with the fast IgG globulins 99

A. Van. der Hoven, J. D. Conradie, M. Bubb and *L. Visser:* The isolation of immunogenically pur IgM from Cohn fraction III of pooled normal human plasma 107

J. W. Fett, H. F. Deutsch and *O. Smithies:* Hinge-region deletion localized in the IgG_1-globulin Mcg 115

H. C. McDonald, G. Odstrchel and *P. H. Maurer:* Antigenicity of polypeptides (poly α amino acids): Specificity of the immune response of rabbits against poly (γ-2-N-morpholinylethyl-L-glutamide) (PAMEG) 119

Book Review 127

March

C. E. Stauffer: Binding of rabbit immunoglobulin G Fab fragments to subtilisin Carlsburg 129

G. Koch, H. G. Seijen and *M. Gruber:* Domains in immunoglobulins: demonstration in human γ-chains 139

B. L. Slomiany, A. Slomiany and *M. I. Horowitz:* Purification and immunochemical studies of the protein-bound J substance from cattle serum 145

J. K. Inman, B. Merchant and *S. E. Tacey:* Synthesis of large haptenic compounds having a common functional group that permits covalent linkage to proteins, cell surfaces, and adsorbents 153

J. K. Inman, B. Merchant, L. Claflin and *S. E. Tacey:* Coupling of large haptens to proteins and cell surfaces: preparation of stable, optimally sensitized erythrocytes for hapten-specific, hemolytic plaque assays 165

B. D. Brondz, A. E. Snegiröva, Y. A. Rassulin and *O. G. Shambroant:* Modification of *in vitro* immune lymphocyte–target cell interaction by some biologically active drugs 175

P. V. Gopalakrishnan, W. S. Hughes, Y. Kim and *F. Karush:* Antibody affinity—IV. The synthesis and immunogenicity of a large β-lactoside hapten 191

G. Pusztaszeri and *J.-P. Mach:* Carcinoembryonic antigen (CEA) in non digestive cancerous and normal tissues 197

Communication to the Editors

H. J. Callahan and *P. H. Maurer:* The immunogenicity of a low molecular weight synthetic polypeptide 205

Announcement 208

April

K. K. Tan and *S. E. Aw:* Immunological studies on HeLa cell heat-stable alkaline phosphatases and their antigenic relationship with human placental and intestinal isoenzymes 209

G. Virella and *R. M. E. Parkhouse:* Sensitivity to reduction of human immunoglobulin G of different heavy chain sub-classes 213

W. B. Dandliker, R. J. Kelly, J. Dandliker, J. Farquhar and *J. Levin:* Fluorescence polarization immunoassay. Theory and experimental method 219

H. Bergstrand and *B. Källén:* Antigenic determinants in the N-terminal part of bovine encephalitogenic protein studied with the macrophage migration inhibition assay in guinea pigs. Evidence for an immunological reactivity of peptide 1–43 when tested on cells from animals injected with Freund's complete adjuvant 229

V. Wicher and *J. Dolovich:* Effects of human serum inhibitors on immunologic properties of *B. sutbilis* alkaline preteinase 239
S. Carrel, L. Theilkas and S. Barandun: Studies on sheep anti-human IgC antibodies and their sub-units 245
V. Gheţie and *S. Mihaescu:* The hydrolysis of rabbit immunoglobulin G with purified cathepsins D and E 251
J. L. Speyer, J. B. Emans, J. W. Kimball and *A. M. Pappenheimer, Jr.:* Quantitative studies of the specificity of anti-pneumococcal polysaccharide antibodies, types III and VIII—V. Cross-reacting antibodies in rabbit antisera 257
E. Teicher, E. Maron and *R. Arnon:* The role of specific amino acid residues in the antigenic reactivity of the loop peptide of lysozyme 265
D. H. Conrad and *G. H. Wirtz:* Characterization of antibodies to vitamin A 273

Communications to the Editors
A. Chersi and *R. G. Mage:* Isolation and characterization of light chains from allotype suppressed b9 homozygous rabbits 277
A. A. Marucci: Inhibition of horse radish peroxidase by specific antisera 278

May

B. Pernis, L. Forni, S. Dubiski, A. S. Kelus, W. J. Mandy and *C. W. Todd:* Heavy chain variable and constant region allotypes in single rabbit plasma cells 281
I. Sjöholm and *M. Ljungdahl:* Protein A from *Staphylococcus aureus*—XVI. Alkylation with iodoacetic acid at different pH-values 287
R. C. Aalberse, H. G. J. Brummelhuis and *E. E. Reerink-Brongers:* The purification of human polyconal IgE by immunosorption 295
M. K. Bach, J. R. Brashler and *D. J. Stechschulte:* Isolation of hapten-specific antibodies from reagin-rich rat sera and their use for the preparation of rat peritoneal cells for antigen-mediated histamine release 305
R. N. Iyer and *I. J. Goldstein:* Quantitative studies on the interaction of concanavalin A, the carbohydrate-binding protein of the jack bean, with model carbohydrate–protein conjugates 313
G. W. Litman, S. L. Chartrand, C. L. Finstad and *R. A. Good:* Active sites of turtle and duck low molecular weight antibody to 2′4′ dinitrophenol 323
K. Keck, A. L. Grossberg and *D. Pressman:* Antibodies of restricted heterogeneity induced by DNP–insulin 331
Y. Weinstein, S. Shaltiel, D. Givol and *P. H. Strausbauch:* The importance of the lysyl residue in goat antidinitrophenyl antibodies modified by site-directed reagents 337
J. O. Minta, I. Goodkofsky and *I. H. Lepow:* Solid phase radioimmunoassay of properdin 341
J. Zikán: J chain in pig immunoglobulins 351
A.-M. Fiat, Y. Goussault, J. Font et *P. Jollès:* Antigénicité croisée des caséinoglycopeptides κ de vache et de brebis avec les antigènes des groupes sanguins M et N 355

Announcements 359

June

N. Rubio and *A. Portoles:* Early interactions between inhibitors and antibodies to lysozyme 361

Y. D. Kim and *F. Karush:* Equine anti-hapten antibody—VII. Anti-lactoside antibody induced by a bacterial vaccine 365

T. Okuda: The structure and function of the third component of guinea pig complement—I. The effect of chemical reagents on immune hemolysis and immune adherence reactivity 373

H. Pihko, J. Lindgren and *E. Ruoslahti:* Rabbit α-fetoprotein: Immunochemical purification and partial characterization 381

D. G. Braun and *J.-C. Jaton:* The aminoterminal sequence of antibody light chains: Evidence for possible inheritance of structural genes 387

J. Rejnek, L. Prokešovà, J. Šterzl and *V. Matoušek:* The presence of IgG and IgM in full term horse umbilical cord sera 397

J. B. Fleischman: Amino acid sequences in the Fd of a rabbit antibody heavy chain 401

C. F. C. MacPherson, R. P. N. Shek and *P. Pay:* Immunochemical analysis of rat brain microsomes 409

Communication to the Editors

W. C. Eby, B. S. Kim, S. Dray, G. O. Young-Cooper and *R. G. Mage:* Detection of the e14 and e15 rabbit allotypic specificities by immunodiffusion in PEG agar 417

Book Reviews 419

List of Recent Books on Immunochemistry and Related Areas of Research 421

Announcements 423

July

G. Florent, G. M. de Vries and *R. Hamers:* Homologous peptides from the Fc region of rabbit IgG 425

W. König, D. Bitter-Suermann, M. Dierich and *U. Hadding:* Bypass-activation of the complement system starting with C3—II. C3-activation by gamma-I-immune aggregates in guinea pig serum 431

S. Sell and *D. Gord:* Rat α-fetoprotein—III. Refinement of radioimmunoassay for detection of 1 ng rat α_1F 439

H. Reynolds, M. Carta-Sorcini and *R. Mage:* The immunoglobulins derived from a V_H-C_H recombinant rabbit and its normal relatives—I. Measurements of heavy chain molecular weights and allotypes of colostral IgA 443

M. Carta-Sorcini, E. Appella, J. K. Inman and *R. Mage:* The immunoglobulins derived from a V_H-C_H recombinant rabbit and its normal relatives—II. Chemical studies of allotype related differences in Fd and Fc fragments 449

N. Hadler and *H. Metzger:* The modification of affinity labeled antibodies 455

M. J. Holmes, D. Michaeli and *H. H. Fudenberg:* Immunoenzymology of acetylcholinesterase—III. Effect of $F(ab')_2$ and Fab portions of anti-acetylcholinesterase globulins on the heat stability of the enzyme 461

R. P. Erickson and *L. T. Rosenberg:* The role of tolerance in the lack of cross-reactivity between homologous (structurally related) proteins: Cross-reactions between α-lactalbumins and between lysozymes recognized by antibodies from intolerant rabbits 467

H. Bergstrand and *B. Källén:* Is there a cross-reactivity between different parts of the bovine encephalitogenic protein in the macrophage migration inhibition assay? 471

T. K. S. Mukkur and *U. J. Tewari:* Physico-chemical and biological properties of the subunits of bovine colostral anti-DNP immunoglobulin M (IgM) 477

Communication to the Editors

T.-I Wang and *P. C. Montgomery:* A simplified method for the synthesis of a radioiodinated DNP–hapten 481

Announcement 484

August

H. Nakamura, A. L. Grossberg and *D. Pressman:* Characterization of the partial binding sites present on the isolated light and heavy chains of anti-naphthalenesulfonate antibodies 485

B.-K. Seon, O. A. Roholt and *D. Pressman:* Amino-terminal sequences of heavy chains of rabbit anti-hapten antibodies of limited heterogeneity 495

G. Stålenheim, O. Götze, N. R. Cooper, J. Sjöquist and *H. J. Müller-Eberhard:* Consumption of human complement components by complexes of IgG with protein A of *Staphylococcus aureus* 501

G. A. Medgyesi, M. Csécsi-Nagy, G. Gorini, É. Puskás, J. Gergely, M. Sajgó and *A. Czuppon:* Fab-related fragments of human IgG produced by partial tryptic proteolysis 509

J. C. Hsia, L. T. L. Wong, K. Pryse and *J. Russel Little:* Alteration of binding specificity of murine myeloma protein-315 to 2,4-dinitrophenyl and 2,4,6-trinitrophenyl ligands 517

V. N. Schumaker, G. Green and *R. L. Wilder:* A theory of bivalent antibody–bivalent hapten interactions 521

A. Seto: Comparative studies of Aal allotypic specificity in IgG and IgM of rabbits—III. Aal allotypic specificity in Fabγ and Fabμ fragments 529

J. Eder and *R. Arnon:* Structural and functional comparison of antibodies to common and specific determinants of papain and chymopapain 535

Speculations

F. F. Richards and *W. H. Konigsberg:* How specific are antibodies? 545

Communications to the Editors

V. V. Adler, A. M. Poverenny, V. K. Podgorodnichenko and *V. S. Shapot:* Inhibition of *in vitro* transcription antibodies to DNA 555

D. V. Stefani, A. I. Gusev and *R. A. Mokeeva:* Isolation of immunochemically pure IgE from serum of E-myeloma patient Yu 559

Book Reviews 563

September

Y. Keisari and *I. P. Witz:* Degradation of immunoglobulins by lysosomal enzymes of tumors—I. Demonstration of the phenomenon using mouse tumors 565

E. Nahon-Merlin, L. Moulart and *F. Lacour:* Immunochemical study of anti poly I· poly C antibodies and of their reaction with RNA 571

A. M. Poverenny, V. K. Podgorodnichenko and *D. B. Saprygin:* The secondary structure of nucleic acids which induce the immunological response 577

R. Yokohari, K. Takeda and *Y. Imamura:* Heat-polymerization of human immunoglobulin G 583

J. E. Coligan, P. A. Henkart, C. W. Todd and *W. D. Terry:* Heterogeneity of the carcinoembryonic antigen 591

M. Z. Atassi and *M. T. Perlstein:* Immunochemistry of sperm whale myoglobin—XIV. Role of histidines 12 and 24 in the antigenic structure 601

L. Prokešová and *J. Rejnek:* Molecular heterogeneity of newborn piglet IgG 607

H. Bergstrand: Localization of antigenic determinants on bovine encephalitogenic protein. Further studies with the macrophage migration inhibition assay in guinea-pigs 611

J. L. Press and *N. R. Klinman:* Isoelectric analysis of neonatal monofocal antibody 621

E. Benjamini, D. Michaeli, C. Y. Leung, K. Wong and *H. Scheuenstuhl:* Immunochemical studies with synthetic peptides related to collagen 629

M. J. Holmes, D. Michaeli and *H. H. Fudenberg:* Immunoenzymology of acetylcholinesterase—IV. Studies on an enzyme-inhibiting antibody 639

Methodology

V. K. Ghanta, J. R. McGhee, S.-J. Soong, N. M. Hamlin, D. C. Hurst and *R. N. Hiramoto:* A study of the single radical hemolysis in gel system—III. Quantitation of complement 645

Communications to the Editors

R. S. Nezlin, M. Yu. Krilov and *O. V. Rokhlin:* Different susceptibility of sub classes of rat IgG2 to tryptic digestion 651

P. Querinjean, H. Bazin, V. Starace, A. Beckers, C. Deckers and *J. F. Heremans:* Lambda light chains in rat immunoglobulins 653

E. L. Romano, C. L. Geczy and *L. A. Steiner:* Reaction of frog antiserum with guinea-pig complement 655

Book Reviews 659

October

L. S. Rodkey: Evolutionary studies of rabbit allotypes—II. Gamma and mu chain sharing of **a** locus markers and L chain location of **b** locus markers 661

N. D. Boyd and *M. Ottosen:* The coupling of chymotrypsinogen to bovine albumin 669

M. Klein: Immunochemical studies of four human IgM pyroglobulins 673

R. S. Nezlin, Y. A. Zagyansky, A. I. Käiväräinen and *D. V. Stefani:* Properties of myeloma immunoglobulin E (Yu). Chemical, fluorescence polarisation and spin-labeled studies 681
J. D. Conradie and *L. Visser:* Normal immunoglobulin M—II. The molecular weights of the intact molecule and its tryptic and reductive fragments 689
P. J. Lachmann, P. Nicol and *W. P. Aston:* Further studies on the C3b inactivator or conglutinogen activating factor (KAF) 695
S. Elsayed, K. Sletten and *K. Aas:* The primary structure of a major allergen (cod): NH_2-terminal amino acid sequence of fragment TM 2 701
O. A. Roholt, K. Onoue, G. Radzimski and *D. Pressman:* Identity of the light chains from the anti-4-azonaphthalene-1-sulfonate IgG and IgM antibodies from a single rabbit 707
D. H. Campbell: Speculations on antibodies to factors involved in growth and reproduction of infectious agents and tumor cells 713

Book Reviews 715

November

M. G. Nicklin and *J. Stephen:* Solubilities of protein-antigen/rabbit-antibody complexes as a measure of serum avidity 717
D. C. Parker, R. M. Krause and *L. Wofsy:* Affinity labeling of anti-group A streptococcal polysaccharide antibodies 727
D. Teitelbaum, R. Arnon, M. Sela, Y. Rabinsohn and *D. Shapiro:* Sphingomyelin specific antibodies elicited by synthetic conjugates 735
B. A. Fraser and *M. F. Mallette:* An improved isolation method and new composition data for Forssman hapten from sheep erythrocytes 745
G. A. Stewart, A. K. Smith and *D. R. Stanworth:* Biological activities associated with the Facb fragment of rabbit IgG 755
H. M. Howell, H. E. Conrad and *E. W. Voss, Jr.:* Hexose and hexosamine content of purified chicken anti-2,4-dinitrophenyl antibody by radio-chromatographic analysis 761

Methodology
E. Neuwelt, P. F. Kohler and *J. Austin:* Primary enzyme immunoassay (PEIA): Studies of the mutant enzyme in metachromatic leukodystrophy (primary enzyme immunoassay of arylsulfatase-A) 767

Review Article
F. Haurowitz: The problem of antibody diversity immunodifferentiation versus somatic mutation 775

Communication to the Editors
J. C. Ellory, A. Feinstein and *J. Herbert:* Stimulation of active potassium transport in LK sheep red cells by monovalent fragments of anti-L antibody 785

J. D. Conradie and *L. Visser:* Normal immunoglobulin M—I. Purification of high temperature tryptic Fabμ- and Fc$_5\mu$-fragments 789

F. Celada, A. J. L. Macario and *E. C. de Macario:* Enzyme activation by antibodies: A method to determine the binding constant of the activating antibody towards one determinant of *E. coli* β-D-galactosidase 797

S. H. Neoh, D. M. Jahoda, D. S. Rowe and *A. Voller:* Immunoglobulin classes in mammalian species identified by cross-reactivity with antisera to human immunoglobulin 805

J. Ambler, J. N. Miller, P. Johnson and *T. S. C. Orr:* Characterisation of an allergen extracted from *Ascaris suum*. Determination of the molecular weight, isoelectric point, amino acid and carbohydrate content of the native allergen 815

D. Huff, H. Reiter and *S. Dray:* Cell free synthesis of peptides bearing rabbit immunoglobulin in allotypic markers 821

R. S. Martineau and *P. Z. Allen:* Cross reactions of a panosyl–azoprotein conjugate with anti-pneumococcal horse sera 829

Communications to the Editors

V. Gheţie and *G. Mota:* The decrease of human colostral immunoglobulin A resistance to papain action after gradual release of the secretory component 839

C. Turberville, D. A. Darcy, D. J. R. Laurence, E. W. Johns and *A. M. Neville:* Studies on carcinoembryonic antigen (CEA) and a related glycoprotein, CCEA-2. Preparation and chemical characterisation 841

Book Reviews 845

AUTHOR INDEX

(B.R. denotes Book Review)

AALBERSE, R. C. 295
AAS, K. 701
ADLER, V. V. 555
ALADJEM, F. 420 (B.R.)
ALLEN, P. Z. 829
AMBLER, J. 815
AMKRAUT, A. 715 (B.R.)
ANTCZAK, D. F. 61
APPELLA, E. 449
ARNON, R. 265, 535, 735
ASTON, W. P. 695
ATASSI, M. Z. 601
AUSTIN, J. 767
AW, S. E. 209
BACH, M. K. 305
BARANDUN, S. 245
BAZIN, H. 653
BECKERS, A. 653
BENJAMINI, E. 629
BERGSTRAND, H. 229, 471, 611
BIELKA, H. 9
BITTER-SUERMANN, D. 431
BLAKESLEE, D. 61
BOYD, N. D. 669
BRADISH, C. J. 21
BRASHLER, J. R. 305
BRAUN, D. G. 387
BRONDZ, B. D. 175
BROWN, P. B. 563 (B.R.)
BRUMMELHUIS, H. G. J. 295
BUBB, M. 107
BURROWS, S. D. 31
CALLAHAN, H. J. 205
CAMPBELL, D. H. 713
CARTA-SORCINI, M. 443, 449
CARREL, S. 245
CELADA, F. 797
CHARTRAND, S. L. 323
CHERSI, A. 277
CHORPENNING, F. W. 15
CLAFLIN, L. 165
COLIGAN, J. E. 591
CONRAD, D. H. 273
CONRAD, H. E. 761
CONRADIE, J. D. 107, 689, 789
COOPER, N. R. 501
CREMERIN, E. 419 (B.R.)
CSÉCSI-NAGY, M. 509
CZUPPON, A. 509
DANDLIKER, J. 219
DANDLIKER, W. B. 219
DARCY, D. A. 841
DECKERS, C. 653
DE MACARIO, E. C. 797
DEUTSCH, H. F. 115
DE VRIES, G. M. 425
DIERICH, M. 431
DOLOVICH, J. 239
DRAY, S. 417, 821
DUBISKI, S. 281
EBY, W. C. 417
EDER, J. 535
ELLORY, J. C. 785
ELSAYED, S. 701
EMANS, J. B. 257
ERICKSON, R. P. 467
FARQUHAR, J. 219
FAVRE, L. 43
FEIGEN, G. A. 659 (B.R.)
FEINSTEIN, A. 785
FETT, J. W. 115
FIAT, A.-M. 355
FINSTAD, C. L. 323
FITZGEORGE, R. B. 21
FLEISCHMAN, J. B. 401

FLORENT, G. 425
FONT, J. 355
FORNI, L. 281
FRASER, B. A. 745
FUDENBERG, H. H. 461, 639
GANDER, J. E. 81
GARVEY, J. S. 127 (B.R.)
GECZY, C. L. 655
GERGELY, J. 509
GHANTA, V. K. 51, 645
GHETIE, V. 251, 839
GIVOL, D. 337
GOLDSTEIN, I. J. 313
GOOD, R. A. 323
GOODKOFSKY, I. 341
GOPALAKRISHNAN, P. V. 191
GORD, D. 439
GORINI, G. 509
GOSSAULT, Y. 355
GÖTZE, O. 501
GREEN, G. 521
GROSS, S. J. 563 (B.R.)
GROSSBERG, A. L. 37, 331, 485
GRUBER, M. 139
GUSEV, A. I. 559
HADDING, U. 431
HADLER, N. 455
HAMERS, R. 425
HAMLIN, N. M. 51, 645
HARRIS, T. N. 715 (B.R.)
HAUROWITZ, F. 775
HENKART, P. A. 591
HERBERT, J. 785
HEREMANS, J. F. 73, 653
HEUMANN, W. 9
HIRAMOTO, R. N. 51, 645
HOLMES, M. J. 461, 639
HOROWITZ, M. I. 145
HOWELL, H. M. 761
HSIA, J. C. 517
HUFF, D. 821
HUGHES, W. S. 191
HURST, D. C. 645
IMAMURA, Y. 583
INMAN, J. K. 153, 165, 449
IYER, R. N. 313
JAHODA, D. M. 805
JATON, J.-C. 387
JOHNS, E. W. 841
JOHNSON, P. 815
JOLLÈS, P. 355
KÄIVÄRÄINEN, A. I. 681
KÄLLÉN, B. 229, 471
KARUSH, F. 191, 365
KECK, K. 331
KEISARI, Y. 565
KELLY, R. J. 219
KELUS, A. S. 281
KIM, B. S. 417
KIM, Y. 191
KIM, Y. D. 365
KIM, Y. T. 3
KIMBALL, J. W. 257
KLEIN, M. 673
KLINMAN, N. R. 621
KNIGHT, K. L. 659 (B.R.)
KNOX, K. W. 93
KOBAYASHI, K. 73
KOCH, G. 139
KOHLER, P. F. 767
KÖNIG, W. 431
KONIGSBERG, W. H. 545
KRAUSE, R. M. 727
KRILOV, M. YU. 651
LACHMANN, P. J. 695
LACOUR, F. 571
LANDUCCI TOSI, S. 65
LAURENCE, D. J. R. 841
LEON, M. A. 420 (B.R.)
LEPOW, I. H. 341
LEUNG, C. Y. 629
LEVIN, J. 219
LEVINE, B. B. 419 (B.R.)
LINDGREN, J. 381
LITMAN, G. W. 323
LITTLE, J. R. 31, 517
LJUNGDAHL, M. 287
MACARIO, A. J. L. 797
MACH, J.-P. 197
MACPHERSON, C. F. C. 409
MAGE, R. G. 277, 417, 443, 449
MALLETTE, M. F. 745
MANDY, W. J. 281
MARON, E. 265
MARTINEAU, R. S. 829
MARUCCI, A. A. 278
MATOUŠEK, V. 397
MAURER, P. H. 55, 119, 205
MAYERS, G. L. 37
McDONALD, H. C. 119
McGHEE, J. R. 645
MEDGYESI, G. A. 509
MERCHANT, B. 153, 165
METZGER, H. 455
MICHAELI, D. 461, 629, 639
MIHAESCU, S. 251
MILLER, J. N. 815
MINTA, J. O. 341
MOKEEVA, R. A. 559
MONCURE, C. W. 99
MONTGOMERY, P. C. 481
MOTA, G. 839
MOULART, L. 571
MUKKUR, T. K. S. 477
MULLER-EBERHARD, H. J. 501
NAHON-MERLIN, E. 571
NAKAMURA, H. 485
NEOH, S. H. 805
NEUWELT, E. 767
NEVILLE, A. M. 841
NEZLIN, R. S. 651, 681
NICKLIN, M. G. 717
NICOL, P. 695
NOLL, F. 9
ODSTRCHEL, G. 119
OKUDA, T. 373
ONOUE, K. 707
ORR, T. S. C. 815
OTTOSEN, M. 669
PAPPENHEIMER, A. M., Jr 257
PARKER, D. C. 727
PARKHOUSE, R. M. E. 213
PAY, P. 409
PERLSTEIN, M. T. 601
PERNIS, B. 281
PIHKO, H. 381
PODGORODNICHENKO, V. K. 555, 577
PORTOLES, A. 361
POVERENNY, A. M. 555, 577
PRESS, J. L. 621
PRESSMAN, D. 37, 331, 485, 495, 707
PROKEŠOVÁ, L. 397, 607
PRYSE, K. 517
PUSKÁS, É. 509
PUSZTASZERI, G. 197
QUERINJEAN, P. 653
RABINSOHN, Y. 735
RADZIMSKI, G. 707
RASSULIN, Y. A. 175
REERINK-BRONGERS, E. E. 295
REITER, H. 821
REJNEK, J. 397, 607
REYNOLDS, H. 443
RICHARDS, F. F. 545
RODKEY, L. S. 661
ROHOLT, O. A. 495, 707, 846 (B.R.)
ROKHLIN, O. V. 651
ROMANO, E. L. 655
ROSENBERG, L. T. 467
ROWE, D. S. 805
ROWLANDS, D. T., Jr. 61
RUBIO, N. 361
RUDBACH, J. A. 81
RUOSLAHTI, E. 381
SAJGÓ, M. 509
SAPRYGIN, D. B. 577
SCHEUENSTUHL, H. 629
SCHUMAKER, V. N. 521
SEIJEN, H. G. 139
SELA, M. 735
SELL, S. 439
SEON, B.-K. 495
SETO, A. 529
SHALTIEL, S. 337
SHAMBORANT, O. G. 175
SHAPIRO, D. 735
SHAPOT, V. S. 555
SHEK, R. P. N. 409
SIGEL, M. M. 845 (B.R.)
SIMON, T. L. 31
SISKIND, G. W. 3
SJÖHOLM, I. 287
SJÖQUIST, J. 501
SLETTEN, K. 701
SLOMIANY, A. 145
SLOMIANY, B. L. 145

SMITH, A. K. 755
SMITH, C. 3
SMITHIES, O. 115
SMYTH, R. D. 55
SNEGIRÖVA, A. E. 175
SOONG, S.-J. 645
SPEYER, J. L. 257
STAUFFER, C. E. 129
STÅLENHEIM, G. 501
STAMPER, H. B. 15
STANWORTH, D. R. 755
STARACE, V. 653
STECHSCHULTE, D. J. 305
STEFANI, D. V. 559, 681
STEINER, L. A. 655
STEPHEN, J. 717
ŠTERZL, J. 397
STEWART, G. A. 755
STRAUSBACH, P. H. 337
TACEY, S. E. 153, 165
TAKEDA, K. 583
TAN, K. K. 209
TEICHER, E. 265
TEITELBAUM, D. 735
TERRY, W. D. 591
TEWARI, U. J. 477
THEILKÄS, L. 245
TODD, C. W. 281, 591
TOSI, R. M. 65
TUBERVILLE, C. 841
VAERMAN, J. P. 73
VALLOTTON, M. B. 43
VAN DER HOVEN, A. 107
VANNIER, W. E. 845 (B.R.)
VIRELLA, G. 213
VISSER, L. 107, 689, 789
VOLLER, A. 805
VOSS, E. W., Jr. 761
WALLER, M. 99
WANG, T.-I. 481
WEINSTEIN, Y. 337
WERBLIN, T. 3
WICHER, V. 239
WICKEN, A. J. 93
WILDER, R. L. 521
WIRTZ, G. H. 273
WITZ, I. P. 565
WOFSY, L. 727
WONG, K. 629
WONG, L. T. L. 517
WUEPPER, K. D. 847 (B.R.)
YOKOHARI, R. 583
YOUNG-COOPER, G. O. 417
ZAGYANSKY, Y. A. 681
ZIKÁN, J. 351

Printed in Great Britain by A. Wheaton & Co., Exeter